# AMENDMENT OF SOLICITATION/MODIFICATION OF CONTRACT

| 1. Contract ID Code | Page | Of |
|---|---|---|
| Cost-Plus-Fixed-Fee | 1 | 16 |

| 2. Amendment/Modification No. | 3. Effective Date | 4. Requisition/Purchase Req No. | 5. Project No. (If applicable) |
|---|---|---|---|
| 01 | 2007MAY03 | SEE SCHEDULE | |

**6. Issued By** Code W56HZV

U.S. ARMY TACOM LCMC
SFAE-GCS-W-BCT
ROBERT D. BAIRD (586)753-2018
WARREN, MICHIGAN 48397-5000
HTTP://CONTRACTING.TACOM.ARMY.MIL

EMAIL: BAIRDR@TACOM.ARMY.MIL

**7. Administered By (If other than Item 6)** Code S2305A

DCMA DETROIT
U.S. ARMY TANK & AUTOMOTIVE COMMAND
(TACOM)
ATTN: DCMAE-GJD
WARREN, MI 48397-5000

**SCD** A **PAS** NONE **ADP PT** HQ0337

**8. Name And Address Of Contractor (No., Street, City, County, State and Zip Code)**

GM GDLS DEFENSE GROUP, LLC
38500 MOUND ROAD
STERLING HEIGHTS, MI 48310-3260

TYPE BUSINESS: Large Business Performing in U.S.

**Code** 1NLE2 **Facility Code**

☐ **9A. Amendment Of Solicitation No.**

**9B. Dated (See Item 11)**

☒ **10A. Modification Of Contract/Order No.**

DAAE07-00-D-M051/0033

**10B. Dated (See Item 13)**
2006SEP26

**11. THIS ITEM ONLY APPLIES TO AMENDMENTS OF SOLICITATIONS**

☐ **The above numbered solicitation is amended as set forth in item 14. The hour and date specified for receipt of Offers**
☐ **is extended,** ☐ **is not extended.**

**Offers must acknowledge receipt of this amendment prior to the hour and date specified in the solicitation or as amended by one of the following methods: (a) By completing items 8 and 15, and returning _____ copies of the amendments: (b) By acknowledging receipt of this amendment on each copy of the offer submitted; or (c) By separate letter or telegram which includes a reference to the solicitation and amendment numbers. FAILURE OF YOUR ACKNOWLEDGMENT TO BE RECEIVED AT THE PLACE DESIGNATED FOR THE RECEIPT OF OFFERS PRIOR TO THE HOUR AND DATE SPECIFIED MAY RESULT IN REJECTION OF YOUR OFFER. If by virtue of this amendment you desire to change an offer already submitted, such change may be made by telegram or letter, provided each telegram or letter makes reference to the solicitation and this amendment, and is received prior to the opening hour and date specified.**

**12. Accounting And Appropriation Data (If required)**
SEE SECTION G (IF APPLICABLE)

**13. THIS ITEM ONLY APPLIES TO MODIFICATIONS OF CONTRACTS/ORDERS**
**It Modifies The Contract/Order No. As Described In Item 14.**

KIND MOD CODE: A

☒ **A. This Change Order is Issued Pursuant To:** FAR 243.2 - CHANGES COST REIMBURSEM **The Changes Set Forth In Item 14 Are Made In The Contract/Order No. In Item 10A.**

☐ **B. The Above Numbered Contract/Order Is Modified To Reflect The Administrative Changes (such as changes in paying office, appropriation data, etc.) Set Forth In Item 14, Pursuant To The Authority of FAR 43.103(b).**

☐ **C. This Supplemental Agreement Is Entered Into Pursuant To Authority Of:**

☐ **D. Other (Specify type of modification and authority)**

**E. IMPORTANT: Contractor** ☒ **is not,** ☐ **is required to sign this document and return _____ copies to the Issuing Office.**

**14. Description Of Amendment/Modification (Organized by UCF section headings, including solicitation/contract subject matter where feasible.)**

SEE SECOND PAGE FOR DESCRIPTION

**Except as provided herein, all terms and conditions of the document referenced in item 9A or 10A, as heretofore changed, remains unchanged and in full force and effect.**

| 15A. Name And Title Of Signer (Type or print) | | 16A. Name And Title Of Contracting Officer (Type or print) | |
|---|---|---|---|
| | | SANDRA E. MCCARROLL<br>MCCARROS@TACOM.ARMY.MIL (586)753-2072 | |
| **15B. Contractor/Offeror** | **15C. Date Signed** | **16B. United States Of America** | **16C. Date Signed** |
| _____<br>**(Signature of person authorized to sign)** | | **By** /SIGNED/<br>**(Signature of Contracting Officer)** | 2007MAY03 |

SECTION A - SUPPLEMENTAL INFORMATION

PROGRAM: STRYKER FAMILY OF ARMORED VEHICLES COMMON MODULAR POWER SYSTEM (CMPS)

1. This Modification 01 to Delivery Order 0033 under Requirements Contract DAAE07-00-D-M051 is a unilateral action.

2. The purpose of this Modification 01 is to revise the Statement of Work, Contract Data Requirement List and Performance Completion Date for Stryker Power and Data Management Architecture Upgrade.

3. Pursuant to Section C.5.8, Developmental Systems Engineering of the Statement of Work (SOW), and Section I.74, Federal Acquisition Regulation (FAR) 52.243-2 Changes Cost Reimbursement (ALT II (April 1984)), the Contracting Officer hereby requires the Contractor to continue to perform the necessary effort as specified in the revised Statement of Work (SOW), entitled "Stryker Power Data Management and Architecture (PDMA)" on a cost Plus fixed fee basis.

4. Based on the Independent Government Cost Estimate (IGCE), the Government has determined that a Cost-Plus-Fixed-Fee Estimated Total Amount of $5,604,493 is fair and reasonable. As a result of this Modification 01, the total amount obligated to Delivery Order 0033 is hereby increased by $2,294,927.

5. As a result of this Modification 01:

a. Dolalrs funded under CLIN 9005AB (Cost Plus Fixed Fee) are increased as follows:

| | TOTAL ESTIMATED COST | FCCM | FIXED FEE | TOTAL ESTIMATED AMOUNT |
|---|---|---|---|---|
| Total to Date | $ 485,627.90 | $ 1,878.46 | $ 42.492.42 | $ 529,998.78 |
| This Modification 01 | $ 1,645,979.00 | $ 4,925.00 | $ 144,023.00 | $ 1,794,000.00 |
| Total Dollars Funded | $ 2,131,606.90 | $ 6,803.46 | $ 186,515.42 | $ 2,323,998.78 |

b. CLIN 9005AC (Cost Plus Fixed Fee) is hereby added to Delivery Order 0033 in the amount of $500,000.00 as follows.

| | |
|---|---|
| TOTAL ESTIMATED COST: | $ 458,472.00 |
| COST OF MONEY: | $ 1,412.00 |
| FIXED FEE: | $ 40,116.00 |
| TOTAL ESTIMATED AMOUNT: | $ 500,000.00 |

c. The Statement of Work in Section C is revised to add clarity and better define the requirement. Paragraph C.1.0 thru C.8.7 in Section C is replaced by paragraphs C.1.0 thru C.12.0.

d. Paragraph F.1 thru F.1.3 in Section F is deleted and paragraph F.1 is now RESERVED for future use.

e. The Contract Data Requirement Lists (CDRLs) at A299 thru A309 are revised.

f. The PDMA Program Schedule at Attachment 1 is deleted.

g. The estimated Performance Completion Date at the CLIN level in Section B is changed from 25 September 2007 to 31 January 2008.

6. If any of the above changes cause an increase or decreased in the estimated cost of, or the time required for, performance of any part of the work under this contract, whether or not changed by the order, or otherwise affects any other terms and conditions of this contract, the Contracting Officer shall make an equitable adjustment in the

(1) Estimated cost, delivery or completion schedule, or both;

(2) Amount of any fixed fee; and

(3) Other affected terms and shall modify the contract accordingly.

7. The Contractor shall assert its right to an adjustment under this clause within 30 days from the effective date of this delivery order. However, if the Contracting Officer decides that the facts justify it, the Contracting Officer may receive and act upon a proposal submitted before final payment of the contract.

8. Failure to agree to any adjustment shall be a dispute under the Disputes clause. However, nothing in this clause shall excuse the Contractor from proceeding with the contract as changed.

9. Notwithstanding the terms and conditions of paragraph 3 and paragraph 5(f) above, the estimated cost of this contract shall not be

increased or considered to be increased except by a specific written modification of this delivery order indicating the delivery order cost. Until this modification is made, the Contractor shall not be obligated to continue performance or incur costs beyond the point established in the Limitation of Cost of Limitation or Funds clause of the contract.

10. As a result of this action, the total amount funded for Delivery Order 0033 is increased by $2,294,927.

11. With the exception of the above all other terms and conditions of the contract remain unchanged and in full force and effect.

*** END OF NARRATIVE A 0002 ***

**Name of Offeror or Contractor:** GM GDLS DEFENSE GROUP, LLC

| ITEM NO | SUPPLIES/SERVICES | QUANTITY | UNIT | UNIT PRICE | AMOUNT |
|---|---|---|---|---|---|
| | SECTION B - SUPPLIES OR SERVICES AND PRICES/COSTS | | | | |
| 9005 | SECURITY CLASS: Unclassified | | | | |
| 9005AA | PDMA<br><br>CLIN CONTRACT TYPE:<br>Cost-Plus-Fixed-Fee<br>NOUN: POWER MGT ARCHITECTURE<br>PRON: X152C045X1 PRON AMD: 03 ACRN: AA<br>AMS CD: 643653C0300<br><br>This CLIN 9005AA revised by Modification 01<br><br>Total Estimated Cost $2,546,865.10<br>FCCM 9,851.54<br>Fixed Fee 222,850.58<br>Total Estimated Amount $2,779,567.22<br><br>(End of narrative C001)<br><br>Inspection and Acceptance<br>INSPECTION: Origin ACCEPTANCE: Origin<br><br>Deliveries or Performance<br>DLVR SCH REL CD: 001 — QUANTITY: 1 — PERF COMPL DATE: 31-JAN-2008<br><br>$ 2,779,567.22 | 1 | LO | | $ 2,779,567.22 |
| 9005AB | PDMA<br><br>CLIN CONTRACT TYPE:<br>Cost-Plus-Fixed-Fee<br>NOUN: POWER MANAGEMENT ARCHITECTURE<br>PRON: X162C010X1 PRON AMD: 03 ACRN: AB<br>AMS CD: 643653C0300<br><br>This CLIN 9005AB revised by Modification 01<br><br>Total Estimated Cost $ 2,131,606.90<br>FCCM $ 6,803.46<br>Fixed Fee $ 186,515,42<br>Total Estimated Amount $ 2,323,998,78<br><br>(End of narrative C001)<br><br>Inspection and Acceptance | 1 | LO | | $ 2,324,925.78 |

**Name of Offeror or Contractor:** GM GDLS DEFENSE GROUP, LLC

| ITEM NO | SUPPLIES/SERVICES | QUANTITY | UNIT | UNIT PRICE | AMOUNT |
|---|---|---|---|---|---|
| | INSPECTION: Origin ACCEPTANCE: Origin<br><br>Deliveries or Performance<br>DLVR SCH REL CD / QUANTITY / PERF COMPL DATE<br>001 / 1 / 31-JAN-2008<br><br>$ 2,324,925.78 | | | | |
| 9005AC | SERVICES LINE ITEM<br><br>CLIN CONTRACT TYPE:<br>Cost-Plus-Fixed-Fee<br>NOUN: MMS INTEGRATION TRADE STUDY<br>PRON: X172C004X1 PRON AMD: 01 ACRN: AC<br>AMS CD: 643653C0300<br><br>This CLIN 9005AC added by Modification 01<br><br>Total Estimated Cost $ 458,472.00<br>FCCM $ 1,412.00<br>Fixed Fee $ 40,116.00<br>Total Estimated Amount $ 500,000.00<br><br>(End of narrative C001)<br><br>Inspection and Acceptance<br>INSPECTION: Origin ACCEPTANCE: Origin<br><br>Deliveries or Performance<br>DLVR SCH REL CD / QUANTITY / PERF COMPL DATE<br>001 / 1 / 31-JAN-2008<br><br>$ 500,000.00 | 1 | LO | | $ 500,000.00 |

SECTION C - DESCRIPTION/SPECIFICATIONS/WORK STATEMENT

Statement of Work

Stryker Power and Data Management Architecture Upgrade

C.1.0 SCOPE. The Power and Data Management Architecture (PDMA) Program consists of the design, engineering development, fabrication, and test of a PDMA to support future Stryker Family of Vehicle (FOV) upgrades and improvements.

C.1.1 Introduction. This Statement of Work (SOW) defines the tasks for the initial work of the PDMA program. In summary, the contractor shall develop concepts for an integrated computer and data bus architecture to process and transfer data in support of future upgrades such as embedded training, Contractor Logistics Operating Environment (CLOE), and single point software downloading for major Line Replaceable Units (LRU). A subsystem performance specification shall be developed for data management architecture. In addition, to plan for the Embedded Training Module (ETM) obsolescence, certain Video Display Terminal (VDT) and ETM hardware and software design will be pulled ahead the rest of PDMA. Finally, the contractor shall support the Common Modular Power Management System (CMPS) effort for PEO GCS.

C.1.2 Background. The technologies required to meet some of these improvement areas are currently being investigated by other Department of Defense (DOD) agencies. It is the intent of this contract to upgrade the existing Stryker performance by leveraging and integrating existing technologies developed for other common power initiatives with PEO GCS/Abrams and Bradley programs as well as with other DOD agencies.

C.1.3 Objectives.

C.1.3.1 Maximize potential for commonality (standards, interfaces, components, software, LRUs).

C.1.3.2 Apply structured, systematic methods consistent with the Stryker System Engineering Plan (SEP) in the analysis and design of the Power Management and Data Management architectures.

C.1.3.3 Support the design integration of the Common Modular Power Management System (CMPS) architecture on all Stryker vehicles.

C.1.3.4 The PDMA shall minimize impact to the overall vehicle performance (mobility, signature) when maximum electrical power generation is required.

C.1.3.5 The PDMA system modifications shall apply to all Stryker variants and be applicable to both the C7 engine and the 3126 engine based power packs.

C.1.3.6 Integrate data processing and data management (for example: single point software download capability for major LRUs and Embedded Training Capabilities) concurrent with power management upgrade.

C.1.3.7 Conduct an analysis of potential modifications to the FSV and RV chassis to accommodate the Mast Mounted Sensor (MMS) from Future Combat Systems (FCS).

C.1.4 Deliverables.

C.1.4.1 Three Step Work Plan Design Review in accordance with paragraph C.3.2.2.2 (CDRL A303)

C.1.4.2 PDMA Design Review in accordance with paragraph C.3.2.3 (CDRL A303).

C.1.4.3 Contract Funds Status Report (CFSR) in accordance with paragraph C.3.2.6 (CDRL A308)

C.1.4.4 Program Management Monthly Status Report in accordance with paragraph C.3.2.7 (CDRL A301)

C.1.4.5 Trade Study Review in accordance with paragraph C.4.4 (CDRL A303)

C.1.4.6 Power Management Architecture in accordance with paragraph C.4.6 (CDRL A305)

C.1.4.7 Data Management Architecture in accordance with paragraph C.4.7 (CDRL A306)

C.1.4.8 PDMA Performance Specification in accordance with paragraph C.4.8 (CDRL A299)

C.1.4.9 Requirements Allocation Traceability in accordance with C.4.10 (CDRL A307)

C.1.4.10 Interface Requirements in accordance with paragraph C.6.0 (CDRL A309)

C.1.4.11 Mast Mounted Sensor Review of Concepts in accordance with paragraph C.7.5 (CDRL A303)

C.1.4.12 Mast Mounted Sensor Design Review in accordance with paragraph C.7.6 (CDRL A303)

C.1.4.13 Mast Mounted Sensor Integration Report in accordance with paragraph C.7.7 (CDRL A300)

C.1.4.14 Stryker Block Upgrade Integrated Master Plan (IMP) in accordance with C.8.1.1 (CDRL A302)

C.1.4.15 Stryker Block Upgrade Integrated Master Schedule (IMS) in accordance with C.8.1.2 (CDRL A304)

C.2.0 APPLICABLE DOCUMENTS.

C.2.1 Government Specifications, Standards and Handbooks.

MIL-STD-881 Work Breakdown Structure for Defense Material Items
MIL-STD-882 Standard Practice for System Safety
MIL-STD-961 Standard Practice for Defense Specifications
MIL-STD-810 Environmental Engineering
MIL-STD-973 Configuration Management
MIL-HDBK-46855 Human Factors Engineering program.
AR 602-2 MANPRINT - Manpower and Personnel Integration in the System Acquisition Process
MIL-STD-40051A Preparation of Digital Technical Information for Multi-Out-put Presentation of Technical Manuals Stryker Performance Specification

C.2.2 Non-Government Specifications and Standards. (Reserved)

C.3.0 REQUIREMENTS

C.3.1 General.

C.3.1.1 The contractor shall design, develop, and test a PDMA that meets the additional performance features as outlined in Paragraph C.3.1.2 below and retain or improve the existing fielded system performance level as documented in the Stryker Performance Specification 2000.1 and the current Stryker Qualification Test Report. Any degradation of performance shall be identified to the Government.

C.3.1.1.1 Development/Integration Requirements. The objective PDMA upgrade shall be capable of providing adequate power and power management, as well as data management, to support planned improvements to the Stryker FOV. The PDMA Upgrade configuration shall be that which exhibits these additional performance features and retain or improve the existing fielded system performance level as documented in the Stryker Performance Specification 2000.1 and the current PDMA Qualification Test Report. Any degradation of performance shall be identified to the Government.

C.3.1.1.2 Off the Shelf Technologies. For cost savings, off-the Shelf technologies shall be considered.

C.3.1.2 Fiscal Year 2011 (FY11) Enhancements/Block Upgrade Support. As part of the Power and Data Management Architecture (PDMA) upgrade effort, the contractor shall expand or replace with upgrade the Strykers common data processing, transfer, storage, and user interface hardware and software to allow for the following system capabilities. The contractor shall initiate formal discussions on ICDs / IRSs with the suppliers for the FY11 Enhancement List items.

C.3.1.2.1 End Item Capabilities. The final system design shall provide a system that:

C.3.1.2.1.1 Processes graphical output for Embedded Training (ET), 360 Situational Awareness (360 SA), Force XXI Battle Command Brigade-and-Below (FBCB2), Blue Force Tracking (BFT), Enhanced Position Location Reporting System (EPLRS), Power Management, Common Logistics Operating Environment (CLOE), Interactive Electronic Technical Manuals (IETMs), and on-board diagnostics.

C.3.1.2.1.2 The PDMA shall provide the capability to display information at other than the primary work station and provide the secondary control at other stations, as appropriate. This is to enhance crew efficiency and provide for redundancy. For example, the Driver shall be able to do training at the Drivers station and the Commander shall be able to view the Drivers DVE image. The matrix of displays and controls versus workstations shall be part of the Trade Study and Design Review information.

C.3.1.2.1.3 Provides a Digital Drivers Instrument Panel (DIP) that displays vehicle equipment status information.

C.3.1.2.1.4 Provides sufficient data storage memory for ET, 360 SA, FBCB2, BFT, EPLRS, Power Management, CLOE, viewing IETMs, and on-board diagnostics.

C.3.1.2.1.5 Receives and processes sensor input, both internal and external to the vehicle, for ET, 360 SA, CLOE, Power Management, and on-board diagnostics.

C.3.1.2.1.6 Accepts download of scenarios for ET into the onboard computer.

C.3.1.2.1.7 Distributes on-board data, throughout the host vehicle and between LRUs, through the Controller Area Network (CAN) and a minimum of Gigabit Ethernet.

C.3.1.2.1.8 Provides a single point software download capability for all software containing LRUs within the host vehicle.

C.3.1.2.1.9 Allows for future expansion space, both real and virtual, for unknown software or hardware upgrades or improvements.

C.3.1.2.2 Acceptance of Other Subsystems. The contractor shall integrate the Power and Data Management of other Stryker Common Block upgrade subsystems. These include but are not limited to Active Protection System (APS) and Mast Mounted Sensor (MMS), and may include future unknown subsystems. Maximum integration is required where appropriate without degrading performance of the subsystems involved.

C.3.2 Program Management. The Contractor shall use an Integrated Product and Process Development (IPPD) approach to manage the Power Improvement Program. The contractor shall, through participation in a Government/Contractor co-chaired Integrated Process Team (IPT), adhere to Concurrent Engineering Practices for the performance of this contract to share contract progress, execution issues and decisions with the Government on a continuous basis. This method will assist the parties in understanding the contract requirements, facilitate time issue resolution, and allow timely insight into contract performance.

C.3.2.1 Meetings.

C.3.2.1.1 Start Work Meeting. The contractor shall conduct a Start of Work meeting at the contractors facility no later than 30 days after contract award. The contractor shall present an overview of its contractual effort to include as a minimum: reviews, organization, trade study approach, schedule, and deliverables.

C.3.2.1.2 Technical Meetings/Technical Reviews. The contractor shall conduct periodic status review meetings with the Government to review current progress and status.

C.3.2.2 Planning. The contractor shall develop a three step "high-level" work plan.

C.3.2.2.1 The three steps for PDMA shall consist of the following.

C.3.2.2.1.1 Step 1, Develop the Stryker Split Decision List. The Stryker Split Decision List is an analysis on existing and FY11 Enhancement LRUs to determine the following.

C.3.2.2.1.1.1 PDMA interfaces to the LRU/FY11 Enhancement as it exists (i.e., no changes to the LRU/FY11 Enhancement).

C.3.2.2.1.1.2 The LRU/FY11 Enhancement is split where part of its functionality is external to PDMA and part resides within PDMA.

C.3.2.2.1.1.3 The LRU/FY11 Enhancement is fully designed within (as part of) PDMA.

C.3.2.2.1.2 Step 2, Develop/perform architecture trades.

C.3.2.2.1.3 Step 3, Develop PDMA Performance Specification.

C.3.2.2.2 A design review shall be conducted at the completion of each of the three steps (CDRL A303).

C.3.2.3 Design Reviews. In addition to the reviews at paragraph C.3.2.2, the contractor shall conduct a Design Review (DR) near the end of PDMA concept development (CDRL A303). The DR shall be a formal review that confirms that the preliminary design logically follows the functional baseline and meets the performance requirements of the Stryker performance specifications.

C.3.2.3.1 The contractor shall conduct a DR following Government approval that the DR entrance criteria have been satisfied. The entrance/exit criteria for the DR shall be agreed to between the Contractor and the Government within 30 days after receipt of award.

C.3.2.3.2 The contractor shall provide a minimum 14 day advance notice. Seven days before a review, the contractor shall provide an agenda for the meeting. The review shall include the contractors progress/management/cost status. The contractor shall provide documentation of all items of discussion presented at the reviews IAW CDRL A300. The location will be either at a GDLS facility in Sterling Heights, Michigan, or at TACOM in Warren, Michigan.

C.3.2.4 Cost As An Independent Variable (CAIV). The contractor shall develop and implement CAIV for the design and integration of the Power Improvement Upgrades into the Stryker Vehicle. CAIV shall include associated achievement criteria, descriptions of the CAIV process, proposed performance versus cost (to include life-cycle costs), and schedule trade-offs. CAIV shall focus on meeting the performance requirement while achieving maximum commonality among other DOD similar requirements and reducing integration challenges at a minimum cost. CAIV shall be used throughout the development, production (CR/ECOs) and future requirements), and support phases to provide an affordable, producible, and sustainable design for the Upgrade. The contractor shall include an update of the PDMA Upgrade CAIV status at each review.

C.3.2.5 Design to Cost. The objective of this contract is to procure the design and integration of a PDMA for the Stryker Vehicle which can be produced and retrofitted at a cost affordable to the Government.

C.3.2.6 Contract Funds Status Report (CFSR). The contractor shall prepare and submit a Contract Funds Status Report (CFSR). (CDRL A308)

C.3.2.7 Program Management Monthly Status Report. The contractor shall prepare and submit a Program Management Monthly Status Report. (CDRL A301)

C.3.2.8 Government Furnished Equipment/Government Furnished Information. The contractor shall integrate Government Furnished Equipment (GFE) and Government Furnished Information (GFI) items into the PDMA design and ensure compatibility with the PDMA upgrade design, and shall not degrade the performance of current GFE/GFI.

C.3.2.9 Configuration Management. The contractor shall implement the configuration management of the PDMA IAW the Government-approved Stryker Program Configuration Management Plan (CMP).

C.3.2.10 Data Access. The Government shall have access to the Integrated Data Environment established by the contractor to view relevant drawings and track engineering changes in the configuration management process. The Government shall be allowed to electronically access the Contractors technical data to review vehicle system technical data. Access is for the purpose of evaluating, test issues, contractor changes and proposals. The contractor shall flow-down to the Government any documentation provided by the subcontractor IAW CDRL A302.

C.3.2.11 Data Items. All data submitted under this contract shall be available electronically and in contractor format written in English, unless otherwise specified.

C.4.0 Engineering.

C.4.1 The contractor shall prepare a detailed schedule for the PDMA effort contained in this Statement of Work.

C.4.2 CMPS Phase II support. The contractor shall support the Common Modular Power Management System (CMPS) IPT Phase II effort in the development of the common power architecture for PEO GCS and in the integration and implementation of the CMPS architecture on Stryker. The contractor shall:

C.4.2.1 Participate in IPT meetings and briefings as required.

C.4.2.2 Review Concept Systems Architecture and Gap Analysis developed during Phase I of the CMPS project and provide engineering analysis.

C.4.2.3 Provide input for system and subsystem level performance for the Stryker variants.

C.4.2.4 Provide engineering analysis of the proposed detailed Stryker system architecture developed in Phase II of the CMPS project.

C.4.3 CMPS Phase III Support. The contractor shall support the CMPS Phase III Stryker Prototype Demonstration by performing the following tasks.

C.4.3.1 The contractor shall participate in CMPS design and specification reviews, vehicle demonstrations, test planning, and report preparation.

C.4.3.2 The contractor shall provide Stryker vehicle cooling system requirements to CMPS to change from a hydraulically driven system to an electrically driven system. This shall include but is not limited to part numbers for the Main Engine Cooling Fan, Engine Bay Fan, and information for cooling algorithm development.

C.4.3.3 The contractor shall provide a digital Drivers Instrument Panel (DIP) including hardware and software developed to the interface point. The contractor shall participate in Interface Definition and Documentation of an ICD for the DIP, to include mounting, power, and data.

C.4.3.4 The contractor shall provide provisions into the DIP for the addition of Auxiliary Power Unit (APU) control functions and required display items.

C.4.3.5 The contractor shall provide space claim evaluation and requirements for CMPS changes and additions to the vehicle. The space claim intent is for ease of production so that minimal engineering changes will be needed after demonstration when readying for production.

C.4.3.6 The contractor shall design the Air Conditioning system as a change from hydraulic drive to electric drive, first by market survey for possible commercial solutions, then by organic design if no commercial solution exists, or a combination of each. With this change the contractor shall attempt to improve the operating range of the A/C system and cooling capacity while minimizing the modifications to the existing AC system. Any degradation of performance shall be identified to the Government. If organic design is used, the design shall maximize current component reuse yet be entirely electric in control and power. The hardware, either purchased or designed/built shall be installed and check out tested on the demonstrator vehicle in Johnson City, NY.

C.4.3.7 The contractor shall provide onsite engineering support for disassembly and reassembly of CMPS vehicle modifications. This onsite support shall occur for no more than 5 days per visit, and no more than 4 visits.

C.4.4 Conduct appropriate trade offs of alternatives. Trade Studies: The Contractor shall conduct Trade Studies of Alternatives for Stryker Data Management. The Contractor shall provide a comparison of potential vehicle modifications with the advantages and disadvantages of each alternative and a recommendation of prioritized vehicle design changes for improving data management. The contractor shall coordinate with the government and each agree upon one prioritized list of criteria for trade study evaluation no later than 30 days before the final trade study review.

C.4.5 Trade Study Review (CDRL A303). Conduct a Trade Study Review with the Government during the Design Review in accordance with paragraph C.3.2.3. The Contractor shall present the results of the Trade Studies at a time and place to be determined by the Government. In either case, the location will be either at GDLS facility in Sterling Heights, Michigan, or at TACOM in Warren, Michigan.

C.4.6 Power Management Architecture (CDRL A305). The contractor shall develop a Power Management Architecture leveraging the output of CMPS. The architecture shall include the FY11 enhancements at paragraph C.3.1.2 and considerations for the out-year improvements.

C.4.7 Data Management Architecture (CDRL A306). The contractor shall develop an integrated computing and data bus architecture to support (as a minimum) the FY11 Enhancements listed in section C.3.1.2.

C.4.8 The contractor shall develop a PDMA Performance Specification (CDRL A299) based on the Data and Power Management Architectures developed under task C.4.6 and task C.4.7.

C.4.9 VDT and ETM Replacement Pull-Ahead. The contractor shall propose options for VDT and ETM functionality replacement, by pulling ahead portions of the PDMA Hardware and Software design. These new items shall not be obsolesced by the full PDMA rollout.

C.4.9.1 The contractor shall perform preliminary design, detailed design, build and test of prototypes based on the selected option in the previous task in paragraph C.4.9.

C.4.10 Requirements Allocation Traceability (CDRL A307). The contractor shall define and document allocation and traceability of PDMA requirements. The contractor shall demonstrate, by means of a crosswalk, that the design meets all requirements of this contract and performance specifications. The contractor shall present the crosswalk at the Design Review (DR) referenced in paragraph C.3.2.3.

C.5.0 Software. This effort shall include software decisions on partitioning, allocations, and interfaces.

C.6.0 Interface Requirements (IR's). The Contractor shall initiate IRs that document the PDMA architecture (CDRL A309).

C.7.0 Mast Mounted Sensor Integration Study. The contractor shall conduct an integration study for a Mast Mounted Sensor in accordance with the objective stated at paragraph C.1.3.7. Specifically, the Mast Mounted Sensor (MMS) includes the following.

Common Electrical-Optical Sensor 1 (CEOS-1) Sensor
Combat ID Transponder (Consider as future growth)
Sensor Armor
Sensor Signature Management Cover (Consider as future growth)
Recon and Surveillance Vehicle (RSV) Mast
Power/Servo Controller (PSC)
Mast Electronics Unit (MEU)
Common EO Electronics Unit (CEEU)

C.7.1 The integration effort shall include a work station and the associated hardware/software for the Sensor Operator, with the FCS work station being used as a reference. The configurations will be evaluated, listed in order of priority, according to (1) ability to integrate an RWS, (2) ability to maximize Field of Fire (FOF) of the RWS, (3) ability to accommodate required number of personnel and (4) maximize mast height.

C.7.1.1 This effort shall assume concurrency of testing and fielding with the Power and Data Management Architecture (PDMA) upgrade, along with the other FY11 Enhancements in the PDMA effort.

C.7.1.2 The first concept considered, should be with the RWS in the Stryker FOV common position, and the MMS in the left rear of the vehicle. Other positions should also be considered.

C.7.1.3 If the MMS does not fit SWaP-C (Size, Weight and Power, Cooling) in the left rear corner (for example, excessive axle loading, excessive retracted height), an analysis of the maximum SWaP-C for various locations shall be undertaken, and included in the report.

C.7.1.4 MMS information will be transmitted to GDLS on the following FCS Advanced Collaborative Environment (ACE) Project Link:

https://www.fcsace.com/ProjectLink/netmarkets/jsp/project/view.jsp?oid=project%7Ewt.projmgmt.admin.Project2%3A52565533andu8=1

C.7.2 Criteria. The following criteria shall be considered when investigating the configurations.

C.7.2.1 Development cost

C.7.2.2 Development period (to TDP release)

C.7.2.3 Retrofit cost (only cost to do the structural modifications to the hull)

C.7.2.4 Retrofit time (only time to do the structural modifications to the hull)

C.7.2.5 Human Factors Engineering

C.7.2.6 Aisle space

C.7.2.7 Sustainment

C.7.2.8 Optimize the design for sensor performance

C.7.2.9 Maintain ballistic integrity

C.7.2.10 Maintain original KPPs

C.7.2.11 Integrate crew as follows.

C.7.2.11.1 RV

C.7.2.11.1.1 Driver

C.7.2.11.1.2 Commander (RWS Operator)

C.7.2.11.1.3 Sensor Operator

C.7.2.11.1.4 Scouts (dismount sensor capability)

C.7.2.11.1.5 Scouts (dismount sensor capability)

C.7.2.11.1.6 Scouts (dismount sensor capability)

C.7.2.11.1.7 Augmentee

C.7.2.11.2 FSV

C.7.2.11.2.1 Driver

C.7.2.11.2.2 Commander

C.7.2.11.2.3 Sensor Operator

C.7.2.11.2.4 Fire Support Operator

C.7.2.12 Heating

C.7.2.13 Cooling impacts

C.7.2.14 Weight impacts

C.7.2.15 Power demand

C.7.2.16 Risk assessment

C.7.3 MMS Integration Study Assumptions

C.7.3.1 When fully retracted and stowed, the MMS, exclusive of signature management cover and Combat ID Transponder, shall not have to be removed for C130 transport.

C.7.3.2 No Stryker Standalone Deployment Armor (SLAT) on either of the variants.

C.7.3.3 No Common Ballistic Shield (CBS) on either of the variants.

C.7.3.4 The following items are to be considered on the vehicle concurrently with the MMS:

C.7.3.4.1 Power and Data Management Architecture (PDMA)

C.7.3.4.2 Counter Remote Control Improvised Explosive Device (RCIED) Electronic Warfare 2 (CREW2)

C.7.3.4.3 RWS Block 2 at Standard/Normal Location preferred

C.7.3.4.4 OIF hardware

C.7.3.4.4.1 Stryker Engine Exhaust Heat Deflector Shield Kit

C.7.3.4.4.2 Air horn

C.7.3.4.5 Land Warrior (LW) and Mounted Warrior (MW)

C.7.3.4.6 Belly Armor (Driver Enhancement Kit (DEK))

C.7.3.4.7 Air Conditioning

C.7.3.4.8 Warfighter Integrated Network Tactical (WIN-T)

C.7.3.4.9 Joint Tactical Radio System (JTRS)

C.7.3.4.10 Defense Advanced GPS Receiver (DAGR)

C.7.3.4.11 Drivers Windshield

C.7.3.4.12 3126 Powerpack and Transmisson

C.7.3.4.13 Active Protection System (APS) will be mounted on vehicle

C.7.4 The contractor shall support Mast Mounted Sensor (MMS) trade study conducted by the Future Combat Systems program.

C.7.5 The contractor shall present to the government a Mast Mounted Sensor Review of Concepts (CDRL A303).

C.7.6 The contractor and government shall participate in a Mast Mounted Design Review (CDRL A303).

C.7.7 The contractor shall submit to the government a Mast Mounted Sensor Integration Report (CDRL A300).

C.8.0 Planning for Stryker Block Upgrade (IMS/IMP)

C.8.1 The improvements and modifications to be included in the Stryker block upgrade planning will be evaluated and agreed upon during this effort.

C.8.1.1 The contractor shall assist the USG in developing an Integrated Master Plan (IMP) for the Stryker block upgrade. The effort will include defining major project milestones, the tasks required to support those milestones and the success criteria for achieving the milestones. (CDRL A302)

C.8.1.2 The contractor shall provide an Integrated Master Schedule (IMS) to execute the IMP. The schedule shall be based on project criteria and assumptions agreed upon between the contractor and the Government. (CDRL A304)

C.9.0 Environmental Compliance. All activities must comply with Federal, State and Local Environmental Laws and Regulations, Executive

Orders, Treaties and Agreements.

C.10.0 Human Factors Engineering (HFE). The contractors HFE effort shall be an integral part of the design process to ensure that the soldier-machine interface facilitates safe and effective operation and maintenance by the full range of user personnel, while wearing the full range of Army Protective garments. Changes and modifications that affect the soldier-machine interface and soldier performance (for operator, maintainer, and support personnel) shall meet the appropriate HFE criteria and requirements, as verified by analyses, simulation, testing, and evaluation. The contractor shall evaluate the initial vehicles provided to assess capability to maximize system and human performance and combat effectiveness, and identify any shortfalls and implement appropriate resolutions. The contractor shall utilize MIL-HDBK-46855 as a guide for managing the Human Factors Engineering program.

C.11.0 Soldier Survivability. The contractor shall consider Soldier Survivability in its design to ensure that all Soldier Survivability concerns, including reducing system-induced detectability, reducing fratricide, reducing potential threat-induced damage, reducing system induced soldier injury, and reducing system induced soldier fatigue, are met and verified by analyses, simulation, testing, and evaluation. The contractor shall brief Soldier Survivability design issues at the design reviews.

*** END OF NARRATIVE C 0001 ***

SECTION F - DELIVERIES OR PERFORMANCE

SECTION F

DELIVERIES

F.1 RESERVED

*** END OF NARRATIVE F 0001 ***

**Name of Offeror or Contractor:** GM GDLS DEFENSE GROUP, LLC

SECTION G - CONTRACT ADMINISTRATION DATA

| LINE ITEM | PRON/ AMS CD/ MIPR | ACRN | OBLG STAT/ JOB ORD NO | PRIOR AMOUNT | INCREASE/DECREASE AMOUNT | CUMULATIVE AMOUNT |
|---|---|---|---|---|---|---|
| 9005AB | X162C010X1<br>643653C0300<br>A16C03512RX1 | AB | 2<br>6GXC10 | $ 529,998.78 | $ 1,794,927.00 | $ 2,324,925.78 |
| 9005AC | X172C004X1<br>643653C0300<br>A17C03512RX1 | AC | 2<br>7GXC04 | $ 0.00 | $ 500,000.00 | $ 500,000.00 |
| | | | | NET CHANGE | $ 2,294,927.00 | |

| SERVICE NAME | NET CHANGE BY ACRN | ACCOUNTING CLASSIFICATION | | ACCOUNTING STATION | INCREASE/DECREASE AMOUNT |
|---|---|---|---|---|---|
| Army | AB | 21 62040000065R5R07P643653255Y | S20113 | W56HZV | $ 1,794,927.00 |
| Army | AC | 21 72040000075R5R07P643653255Y | S20113 | W56HZV | $ 500,000.00 |
| | | | | NET CHANGE | $ 2,294,927.00 |

| | PRIOR AMOUNT OF AWARD | INCREASE/DECREASE AMOUNT | CUMULATIVE OBLIG AMT |
|---|---|---|---|
| NET CHANGE FOR AWARD: | $ 3,309,566.00 | $ 2,294,927.00 | $ 5,604,493.00 |

| ACRN | EDI | ACCOUNTING CLASSIFICATION | | | | |
|---|---|---|---|---|---|---|
| AB | 21 | 060720400000 | S20113 | 65R5R07643653C0300255Y | 6GXC10S20113 | W56HZV |
| AC | 21 | 070820400000 | S20113 | 75R5R07643653C0300255Y | 7GXC04S20113 | W56HZV |

**Name of Offeror or Contractor:** GM GDLS DEFENSE GROUP, LLC

SECTION J - LIST OF ATTACHMENTS

| List of Addenda | Title | Date | Number of Pages | Transmitted By |
|---|---|---|---|---|
| Exhibit A | CDRL A299 - PDMA PERFORMANCE SPECIFICATION | 02-MAY-2007 | 001 | DATA |
| Exhibit B | CDRL A300 - MAST MOUNTED SENSOR INTEGRATION REPORT | 02-MAY-2007 | 001 | DATA |
| Exhibit C | CDRL A301 - PROGRAM MANAGEMENT MONTHLY STATUS | 02-MAY-2007 | 001 | DATA |
| Exhibit D | CDRL A302 - STRYKER BLOCK UPGRADE INTEGRATED MASTER PLAN (IMP) | 02-MAY-2007 | 001 | DATA |
| Exhibit E | CDRL A303 - PDMA DESIGN REVIEW | 02-MAY-2007 | 001 | DATA |
| Exhibit F | CDRL A304 - STRYKER BLOCK UPGRADE INTEGRATED MASTER SCHEDULE (IMS) | 02-MAY-2007 | 001 | DATA |
| Exhibit G | CDRL A305 - POWER MANAGEMENT ARCHITECTURE | 02-MAY-2007 | 001 | DATA |
| Exhibit H | CDRL A306 - DATA MANAGEMENT ARCHITECTURE | 02-MAY-2007 | 001 | DATA |
| Exhibit J | CDRL A307 - REQUIREMENTS ALLOCATION TRACEABILITY | 02-MAY-2007 | 001 | DATA |
| Exhibit K | CDRL A308 - CONTRACT FUNDS STATUS REPORT (CFSR) | 02-MAY-2007 | 001 | DATA |
| Exhibit L | CDRL A309 - INTERFACE REQUIREMENTS | 02-MAY-2007 | 001 | DATA |
| Attachment 001 | PDMA PROGRAM SCHEDULE | DELETED | 001 | DATA |